

ABSTRACT OF THE DISCLOSURE

A material sensing sensor using a thin film bulk acoustic resonator having a compact size and a high material measurement sensitivity is formed together with other material sensing sensors in an array form, and integrated with a signal processor on the same board, to thereby precisely sensing a plurality of materials, and a material sensing module. The material sensing sensor using a thin film bulk acoustic resonator (TFBAR) includes: a first thin film bulk acoustic resonator for generating a first resonant frequency according to the amount and/or thickness of a target material; and a reference thin film bulk acoustic resonator for generating a reference resonant frequency.